



CONTAINS NO CBI *GE Aerospace*

General Electric Company
P.O. Box 8555, Philadelphia, PA 19101
215 354-1000

90-900000019

October 31, 1989

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

Attention: CAIR Reporting Office

Dear Sir or Madam:

Attached, please find a completed CAIR Report for General Electric, Astro Space Division, King of Prussia, Pennsylvania.

The reported listed substance is 2,4-toluene diisocyanate.

Sincerely,

Dennis Olejniczak
Environmental Engineer

DBO/ezb
Attachment

CERTIFIED MAIL

OFFICE

89 NOV -7 AM 10:20



Form Approved
OMB No. 2010-0019
Approval Expires 12-31-89

EPA-OTS



0006360106

90-9000000019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Comprehensive Assessment Information Rule
REPORTING FORM

89 NOV -7 AM 10:20
OFFICE

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: _____

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Docket Number: _____

CAIR REPORTING FORM CHECKLIST

THIS CHECKLIST IS NOT REQUIRED TO BE SUBMITTED,
IT IS FOR RESPONDENT'S INTERNAL USE ONLY

This form is intended to gather information on a specific listed substance that is manufactured, imported, or processed at one facility. Respondents must answer only those sections or specific questions required in the CAIR rule.

Respondents may use the same form each time they must report. The original copy of the form received by respondents should be kept on file and used to make copies of the questions required to be answered. These copies may then be circulated to those employees who will complete the form. Respondents must submit only one copy of each question rather than compiling parts of each question from various employees and submitting them together as one question.

Respondents need only supply information on the form that is "known to or reasonably ascertainable by" the respondent. Refer to the glossary for this definition. All reports with incomplete responses will be assessed as invalid and a Notice of Noncompliance Error Letter and a copy of the question will be sent to you for completion.

Before completing any portion of this form, please read the instruction booklet. The booklet contains general instructions on how to comply with the rule, supplemental instructions and sample answers for many questions, and a glossary containing definitions of key terms. Refer to the glossary whenever an unknown term appears to examine the definition provided.

If you cannot determine your reporting obligations, you should call the TSCA Assistance Office, U.S. EPA, at (202) 554-1404. To obtain additional forms, write to the TSCA Assistance Office (TS-779), ATTN: CAIR Form Request, Office of Toxic Substances, Environmental Protection Agency, Room E-543, 401 M St., SW, Washington, DC 20460, or call at (202) 554-1404.

BEFORE RETURNING YOUR COMPLETED CAIR FORM PLEASE CHECK THE FOLLOWING:

- ____ 1. Have you completed and included Section 1 for each form you are submitting?
- ____ 2. Have you submitted a standard chemical name and Chemical Abstract Service Registry Number for each chemical you are reporting on?
- ____ 3. Does your submitted form include the original certification signatures as required for questions 1.06, 1.07, and 1.08?

- ____ 4. Have you submitted a completed separate form for each substance you are required to report on?
- ____ 5. Have you submitted a completed separate form for each site at which you manufacture, import, or process a listed substance?
- ____ 6. For each listed substance you must report on, have you reported on all activities you engage in at each site using the listed substance on the same reporting form?
- ____ 7. If you are claiming information as Confidential Business Information (CBI), have you completed the CBI substantiation form in Appendix II of the form for each category containing CBI? Failure to submit a completed CBI substantiation form with a reporting form containing CBI will result in the waiver of your claim of confidentiality.
- ____ 8. For each question that you are required to answer, have you responded by either providing the data, stating not applicable ("N/A"), or, if the question permits, stating unknown ("UK")?
- ____ 9. Have you right justified your responses to questions asked that require respondents to give a numeric response in a series of boxes (e.g., the answer "372" is entered as [0][0][3][7][2])?
- ____ 10. Have your responses been given in alpha, numeric or alpha-numeric form such as 3 million or 3,000,000? Responses must not be given in scientific notation such as 3×10^6 .
- ____ 11. If you needed additional space to report the required data, have you checked the continuation sheet box at the bottom of each page that requires additional space; attached additional copies of the specific questions of this form that contain additional information; and listed the attachments in Appendix I of the reporting form?

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been completed in response to the Federal Register Notice of..... [0] [8] [0] [1] [8] [9]
mo. day year

CBI

☐ a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. [0] [0] [0] [5] [8] [4] - [8] [4] - [9]

b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.

(i) Chemical name as listed in the rule 2,4-toluene diisocyanate

(ii) Name of mixture as listed in the rule _____

(iii) Trade name as listed in the rule Solithane 113

c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.

Name of category as listed in the rule _____

CAS No. of chemical substance [] [] [] [] [] [] - [] [] - []

Name of chemical substance _____

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI Manufacturer 1

☐ Importer 2

Processor ③

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

☐ Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

☒ Yes ☒ Go to question 1.04

☐ No ☐ Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

☒ Yes ①

☐ No 2

b. Check the appropriate box below:

☒ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) SMRD 900 Series

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

☐ Trade name N/A.....

☐ Is the trade name product a mixture? Circle the appropriate response.

Yes 1

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Charles B. Chilton

NAME

CB Chilton

SIGNATURE

10/30/89
DATE SIGNED

Manager, Industrial Safety

TITLE

(215) 354 - 4570

TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You CBI ☐ are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

N/A

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) - TELEPHONE NO.	_____ DATE OF PREVIOUS SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI

☐

N/A

"My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) - TELEPHONE NO.	

☐ Mark (X) this box if you attach a continuation sheet.

PART B CORPORATE DATA

1.09 Facility Identification

CBI Name [G][E][N][E][R][A][L][I][T][Y][C][O][R][P][O][R][A][T][I][O][N][S] SP'ACIE
[] Address [2][3][0][G][O][D][D][A][R][D][B][I][V][D][]
Street
[K][I][N][G][O][F][P][R][U][S][S][I][A]
City
[P][A] [1][9][4][0][6]--([]([]([])
State Zip
Dun & Bradstreet Number [0][0] - [1][6][8] - [0][7][1][9]
EPA ID Number [0][0][1][6][8][0][7][1][9]
Employer ID Number []([]([]([]([]([]
Primary Standard Industrial Classification (SIC) Code [3][7][6][9]
Other SIC Code []([]([]
Other SIC Code []([]([]

1.10 Company Headquarters Identification

CBI Name [G][E][N][E][R][A][L][I][T][Y][C][O][R][P][O][R][A][T][I][O][N]
[] Address [3][1][3][5][E][A][S][T][O][N][T][U][R][N][P][I][K][E]
Street
[E][A][I][R][F][I][E][L][D]
City
[C][T] [0][6][4][3][1]--([]([]([]
State Zip
Dun & Bradstreet Number [0][0] - [1][6][8] - [0][7][1][9]
Employer ID Number [1][4][0][6][8][9][3][4]0

[] Mark (X) this box if you attach a continuation sheet.

[illegible]

CBI Name [D][E][N][I][S][][O][L][E][J][N][I][C][Z][A][K][][][][][][][][][][][][][][][][][]
[][] Title [E][N][V][I][R][O][N][M][E][N][T][A][L][][E][N][G][I][N][E][E][R][][][][][][][][][][][][][][][][][]
Address [P][O][][B][O][X][][8][5][5][5][][][][][][][][][][][][][][][][][] Street
[P][H][I][L][A][D][E][L][P][H][I][A][][][][][][][][][][][][][][][][][] City
[P][A][][19][10][1]--[][][][][] Zip
Telephone Number [2][1][5]-[3][5][4]-[1][2][1][5]

☐ Mark (X) this box if you attach a continuation sheet.

[illegible][illegible]

8

1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

<u>CBI</u>	<u>Classification</u>	<u>Quantity (kg/yr)</u>
<input type="checkbox"/>	Manufactured	N/A
	Imported	N/A
	Processed (include quantity repackaged)	22.00 *
	Of that quantity manufactured or imported, report that quantity:	
	In storage at the beginning of the reporting year	N/A
	For on-site use or processing	N/A
	For direct commercial distribution (including export)	N/A
	In storage at the end of the reporting year	N/A
	Of that quantity processed, report that quantity:	
	In storage at the beginning of the reporting year	11.00
	Processed as a reactant (chemical producer)	N/A
	Processed as a formulation component (mixture producer)	22.0
	Processed as an article component (article producer)	N/A
	Repackaged (including export)	N/A
	In storage at the end of the reporting year	11.00

* 22 kg/yr of TDI which is an ingredient of S-113 at 6.3% concentration. Therefore, 350 kg of S-113 @ 6.3% = 22 kg of TDI, the listed material.

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[]

<u>Component Name</u>	<u>Supplier Name</u>	Average % <u>Composition by Weight</u> (specify precision, e.g., 45% ± 0.5%)
2,4-toluene diisocyanate	Morton Thiokol, Inc.	6.5% + .5%
UK		
		Total 100%

Note: Material Safety Data Sheet identifies only one hazardous ingredient; no other ingredients are identified.

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 2 MANUFACTURER, IMPORTER, AND PROCESSOR VOLUME AND USE

2.01 State the total number of years, including the reporting year, that your facility has
CBI manufactured, imported, or processed the listed substance.

☐ Number of years manufactured yrs.
Num. years imported yrs.
Number of years processed yrs.

2.02 State the quantity of the listed substance that your facility manufactured, imported,
or processed during the corporate fiscal year preceding the reporting year.

CBI Year ending ☐ ☐ ☐ ☐
☐ Mo. Year

Quantity manufactured kg
Quantity imported kg
Quantity processed kg

2.03 State the quantity of the listed substance that your facility manufactured, imported,
or processed during the 2 corporate fiscal years preceding the reporting year in
descending order.

CBI Year ending ☐ ☐ ☐ ☐
☐ Mo. Year

Quantity manufactured kg
Quantity imported kg
Quantity processed kg
Year ending ☐ ☐ ☐ ☐
Mo. Year

Quantity manufactured kg
Quantity imported kg
Quantity processed kg

☐ Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

☐ Year ending (1)(2) (8)(7)
Mo. Year

Quantity manufactured N/A kg

Quantity imported N/A kg

Quantity processed 22.0 kg

Year ending (1)(2) (8)(6)
Mo. Year

Quantity manufactured N/A

Quantity imported N/A kg

Quantity processed 22.0 kg

Year ending (1)(2) (8)(5)
Mo. Year

Quantity manufactured N/A kg

Quantity imported N/A kg

Quantity processed 22.0 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

N/A

☐ Continuous process 1

Semicontinuous process 2

Batch process

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

- ☐ Continuous process 1
- ☐ Semicontinuous process 2
- ☐ Batch process 3

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.) N/A

☐ Manufacturing capacity kg/yr

☐ Processing capacity kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

<input type="checkbox"/>	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	N/A	N/A	UK
Amount of decrease	N/A	N/A	UK

☐ Mark (X) this box if you attach a continuation sheet.

- 2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

☐

	<u>Days/Year</u>	<u>Average Hours/Day</u>
Process Type #1 (The process type involving the largest quantity of the listed substance.)		
Manufactured	<u>N/A</u>	<u>N/A</u>
Processed	<u>180</u>	<u>4</u>
Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)		
Manufactured	<u>N/A</u>	<u>N/A</u>
Processed	<u>250</u>	<u>1</u>
Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)		
Manufactured	<u>N/A</u>	<u>N/A</u>
Processed	<u>250</u>	<u>6</u>

- 2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

☐

Maximum daily inventory kg

Average monthly inventory kg

☐ Mark (X) this box if you attach a continuation sheet.

- 2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

☐

N/A

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify \pm % precision)</u>	<u>Source of By-products, Coproducts, or Impurities</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

- 2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
K	100	99	H
N/A	N/A	N/A	N/A

¹Use the following codes to designate product types:

A = Solvent
 B = Synthetic reactant
 C = Catalyst/Initiator/Accelerator/
 Sensitizer
 D = Inhibitor/Stabilizer/Scavenger/
 Antioxidant
 E = Analytical reagent
 F = Chelator/Coagulant/Sequestrant
 G = Cleanser/Detergent/Degreaser
 H = Lubricant/Friction modifier/Antiwear
 agent
 I = Surfactant/Emulsifier
 J = Flame retardant
 K = Coating/Binder/Adhesive and additives

L = Moldable/Castable/Rubber and additives
 M = Plasticizer
 N = Dye/Pigment/Colorant/Ink and additives
 O = Photographic/Reprographic chemical
 and additives
 P = Electrodeposition/Plating chemicals
 Q = Fuel and fuel additives
 R = Explosive chemicals and additives
 S = Fragrance/Flavor chemicals
 T = Pollution control chemicals
 U = Functional fluids and additives
 V = Metal alloy and additives
 W = Rheological modifier
 X = Other (specify) N/A

²Use the following codes to designate the type of end-users:

I = Industrial
 CM = Commercial

CS = Consumer
 H = Other (specify) Government

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
K	100	99	H
N/A	N/A	N/A	N/A
↓	↓	↓	↓
↓	↓	↓	↓
↓	↓	↓	↓
↓	↓	↓	↓

¹Use the following codes to designate product types:

A = Solvent
 B = Synthetic reactant
 C = Catalyst/Initiator/Accelerator/Sensitizer
 D = Inhibitor/Stabilizer/Scavenger/Antioxidant
 E = Analytical reagent
 F = Chelator/Coagulant/Sequestrant
 G = Cleanser/Detergent/Degreaser
 H = Lubricant/Friction modifier/Antiwear agent
 I = Surfactant/Emulsifier
 J = Flame retardant
 K = Coating/Binder/Adhesive and additives

L = Moldable/Castable/Rubber and additives
 M = Plasticizer
 N = Dye/Pigment/Colorant/Ink and additives
 O = Photographic/Reprographic chemical and additives
 P = Electrodeposition/Plating chemicals
 Q = Fuel and fuel additives
 R = Explosive chemicals and additives
 S = Fragrance/Flavor chemicals
 T = Pollution control chemicals
 U = Functional fluids and additives
 V = Metal alloy and additives
 W = Rheological modifier
 X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial
 CM = Commercial

CS = Consumer
 H = Other (specify) Government

☐ Mark (X) this box if you attach a continuation sheet.

- 2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
K	F4	100	H
K	B	100	H
N/A	N/A	N/A	N/A

¹ Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) <u>N/A</u>

² Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) <u>N/A</u>
F1 = Powder	

³ Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) <u>Government</u>

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the listed substance to off-site customers.

CBI N/A

☐ Truck 1

Railcar 2

Barge, Vessel 3

Pipeline 4

Plane 5

Other (specify) _____ 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers or prepared by your customers during the reporting year for use under each category of end use listed (i-iv).

CBI

☐ Category of End Use

i. Industrial Products

Chemical or mixture 1.0 kg/yr

Article kg/yr

ii. Commercial Products N/A

Chemical or mixture kg/yr

Article kg/yr

iii. Consumer Products N/A

Chemical or mixture kg/yr

Article kg/yr

iv. Other N/A

Distribution (excluding export) kg/yr

Export kg/yr

Quantity of substance consumed as reactant kg/yr

Unknown customer uses kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

2.17 State the quantity of the listed substance that you exported during the reporting
CBI year.

☐ In bulk kg/yr
As a mixture kg/yr
In articles kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

- 3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
CBI The average price is the market value of the product that was traded for the listed substance.

☐

<u>Source of Supply</u>	<u>Quantity (kg)</u>	<u>Average Price (\$/kg)</u>
The listed substance was manufactured on-site.		
The listed substance was transferred from a different company site.		
The listed substance was purchased directly from a manufacturer or importer.		
The listed substance was purchased from a distributor or repackager.		
The listed substance was purchased from a mixture producer.	22.0	2

22 kg/yr of TDI which is an ingredient of S-113 at 6.3% concentration.
 Therefore, 350 kg of S-113 @ 6.3% = 22 kg of TDI, the listed material.

- 3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

☐

- ☒ Truck ①
 Railcar 2
 Barge, Vessel 3
 Pipeline 4
 Plane 5
 Other (specify) _____ 6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.
CBI

☐

Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) 5 gallon can 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders ..N/A..... mmHg
Tank rail cars ..N/A..... mmHg
Tank trucksN/A..... mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

[]

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	Average <u>% Composition by Weight</u> (specify ± % precision)	Amount Processed (kg/yr)
Solithane S-113	Morton Thiokol	6.5% ± .5%	350.00

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

[]

**% Composition by
Weight of Listed Sub-
stance in Raw Material
(specify \pm % precision)**

Class I chemical

Quantity Used
(kg/yr)

350.00

 $6.5\% \pm .5\%$

N/A

N/A

Class II chemical

Polymer

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.09 if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI

☐

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	_____ % purity	_____ % purity	_____ % purity
Technical grade #2	_____ % purity	_____ % purity	_____ % purity
Technical grade #3	_____ % purity	_____ % purity	_____ % purity

N/A - mixture

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ①

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1

Another source 2

☒ Mark (X) this box if you attach a continuation sheet.

- 4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes 1
 No (2)

- 4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

[]

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture N/A	1	2	3	4	5
Import N/A	1	2	3	4	5
Process	(1)	2	(3)	4	5
Store	1	2	(3)	4	5
Dispose	(1)	2	(3)	4	5
Transport	(1)	2	3	4	5

[] Mark (X) this box if you attach a continuation sheet.

- 4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

N/A

Physical State		<u>Manufacture</u>	<u>Import</u>	<u>Process</u>	<u>Store</u>	<u>Dispose</u>	<u>Transport</u>
Dust	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Powder	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Fiber	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____
Aerosol	<1 micron	_____	_____	_____	_____	_____	_____
	1 to <5 microns	_____	_____	_____	_____	_____	_____
	5 to <10 microns	_____	_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

4.15 Shipment Procedures -- If you use an inhibitor or stabilizer when shipping the listed substance in bulk form, specify its name, whether it inhibits or stabilizes the listed substance, the amount normally added, and the duration of its effectiveness.

CBI

☐

<u>Name of Additive</u>	<u>Inhibitor or Stabilizer¹</u>	<u>Amount Normally Added (ppm or %)</u>	<u>Duration of Effectiveness (specify units)</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Indicate if hazard information/MSDS has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

¹Use the following codes to designate inhibitor and stabilizer:

I = Inhibitor
S = Stabilizer

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

- a. ϵ is: UK
- Absorption spectrum coefficient (peak) UK (1/M cm) at _____ nm
- Reaction quantum yield, ϕ UK at _____ nm
- Direct photolysis rate constant, k_p , at ... UK 1/hr _____ latitude
- b. Oxidation constants at 25°C: UK
- For 1O_2 (singlet oxygen), k_{ox} UK 1/M hr
- For RO_2 (peroxy radical), k_{ox} UK 1/M hr
- c. Five-day biochemical oxygen demand, BOD_5 ... UK mg/l
- d. Biotransformation rate constant: UK
- For bacterial transformation in water, k_b ... UK 1/hr
- Specify culture UK
- e. Hydrolysis rate constants: UK
- For base-promoted process, k_b UK 1/M hr
- For acid-promoted process, k_a UK 1/M hr
- For neutral process, k_n UK 1/hr
- f. Chemical reduction rate (specify conditions) UK
- _____
- g. Other (such as spontaneous degradation) ... UK
- _____

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

- 5.02 a. Specify the half-life of the listed substance in the following media.
UK

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	UK
Atmosphere	UK
Surface water	UK
Soil	UK

- b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours. UK

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
			in
			in
			in
			in

- 5.03 Specify the octanol-water partition coefficient, K_{ow} ... UK at 25
UK Method of calculation or determination

- 5.04 Specify the soil-water partition coefficient, K_d UK at 25°C
UK Soil type

- 5.05 Specify the organic carbon-water partition
UK coefficient, K_{oc} UK at 25°C

- 5.06 Specify the Henry's Law Constant, H atm-m³/mole
UK

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

<u>Bioconcentration Factor</u>	<u>Species</u>	<u>Test</u> ¹
UK		

¹Use the following codes to designate the type of test:

F = Flowthrough

S = Static

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 6 ECONOMIC AND FINANCIAL INFORMATION

6.01 Company Type -- Circle the number which most appropriately describes your company.

- CBI
- ☒ Corporation 1
- ☐ Sole proprietorship 2
- Partnership 3
- Other (specify) _____ 4

6.02 At the end of the reporting year, were you constructing additional facilities at this site that were not yet in operation at the end of the reporting year, but which are now being used or will be used in the future for manufacturing, importing, or processing the listed substance? Circle the appropriate response.

- CBI
- ☐ Yes 1
- No 2

6.03 List all of the product types that you manufacture that contain the listed substance as a raw material, and the percentage of the name-plate capacity dedicated to the listed substance that each product type represents. The total of all capacity percentiles should equal 100 percent. State the total name-plate capacity of the process type(s) used to manufacture all product types that contain the listed substance.

CBI

☐

Product Type	% Total Capacity
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

State the total name-plate capacity of the process type(s) used to manufacture all product types that contain the listed substance: _____ kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of the listed substance sold or transferred in bulk during the reporting year.

☐

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	_____	_____
Distribution -- Wholesalers	_____	_____
Distribution -- Retailers	_____	_____
Intra-company transfer	_____	_____
Repackagers	_____	_____
Mixture producers	_____	_____
Article producers	_____	_____
Other chemical manufacturers or processors	_____	_____
Exporters	_____	_____
Other (specify)	_____	_____
_____	_____	_____

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist for the listed substance and state the cost of each substitute. A commercially feasible substitute is one which is economically and technologically feasible to use in your current operation, and which results in a final product with comparable performance in its end uses.

CBI

☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
UK	_____
UK	_____
UK	_____

☐ Mark (X) this box if you attach a continuation sheet.

6.06 State your average total and variable costs of manufacturing, importing, and processing the listed substance during the reporting year. (For an explanation of these costs, refer to the instructions.)

CBI

☐

Average Total Costs

Manufacturing \$/kg
Importing \$/kg
Processing \$/kg

Average Variable Costs

Manufacturing \$/kg
Importing \$/kg
Processing \$/kg

6.07 State your average purchase price of the listed substance, if purchased as a raw material during the reporting year.

CBI

☐ Average purchase price \$/kg

6.08 State your company's total sales and sales of the listed substance sold in bulk for the reporting year.

CBI

☐

Year ending ☐☐ ☐☐
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

☐ Mark (X) this box if you attach a continuation sheet.

6.09 State your company's total sales and sales of the listed substance sold in bulk for the corporate fiscal year preceding the reporting year. (Refer to the instructions for question 6.08 for the methodology used to answer this question.)

CBI

☐

Year ending
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

6.10 State your company's total sales and sales of the listed substance sold in bulk for the 2 corporate fiscal years preceding the reporting year in descending order. (Refer to the instructions for question 6.08 for the methodology used to answer this question.)

CBI

☐

Year ending
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

Year ending
Mo. Year

Company's total sales (\$)

Sales of listed substance (\$)

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

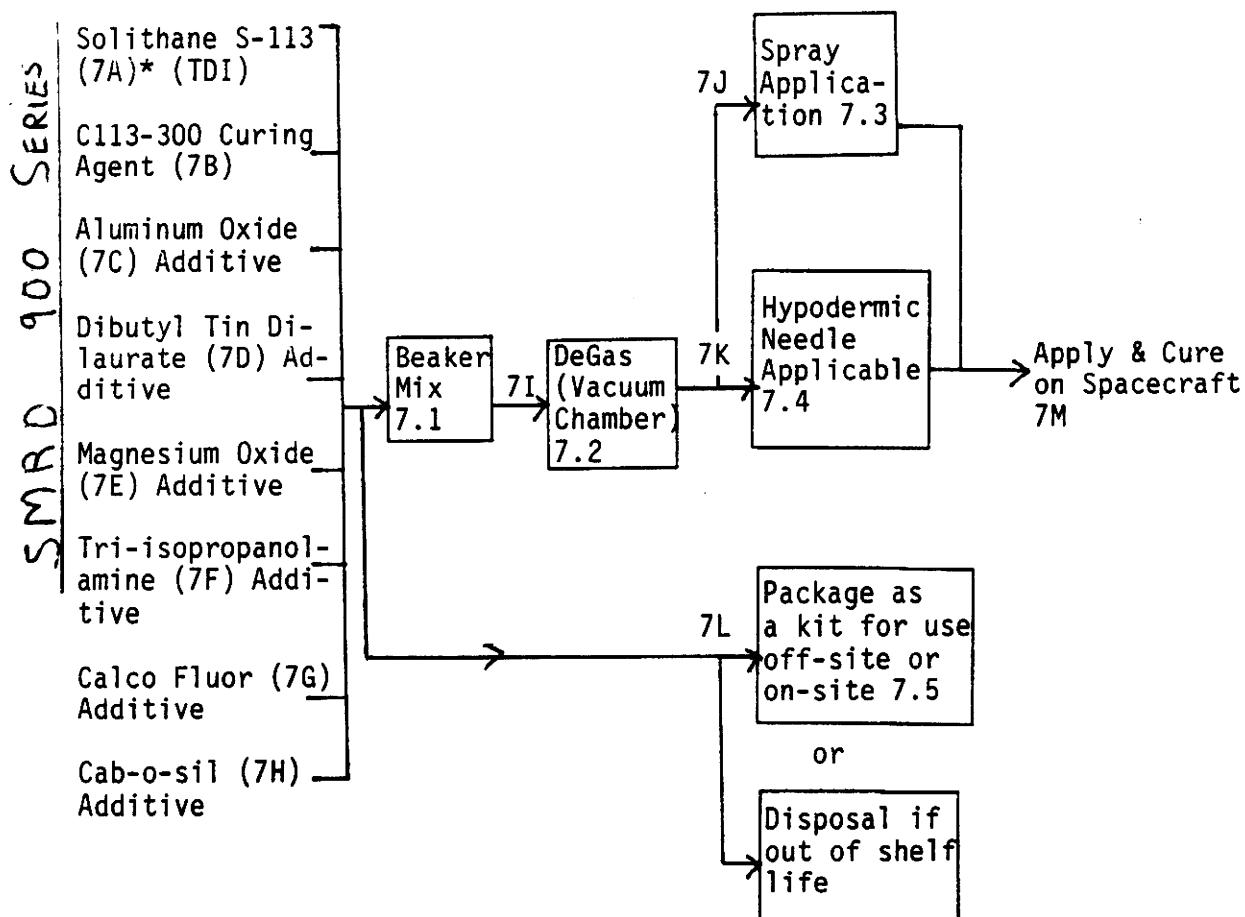
For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

CBI

☐ Process type Urethane Coating



*contains 6-7% toluene diisocyanate (TDI)

☐ Mark (X) this box if you attach a continuation sheet.

-
- 7.02 In accordance with the instructions, provide a separate process block flow diagram showing each of the three major (greatest volume) process types involving the listed substance.

CBI

☐ Process type

☐ Mark (X) this box if you attach a continuation sheet.

7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

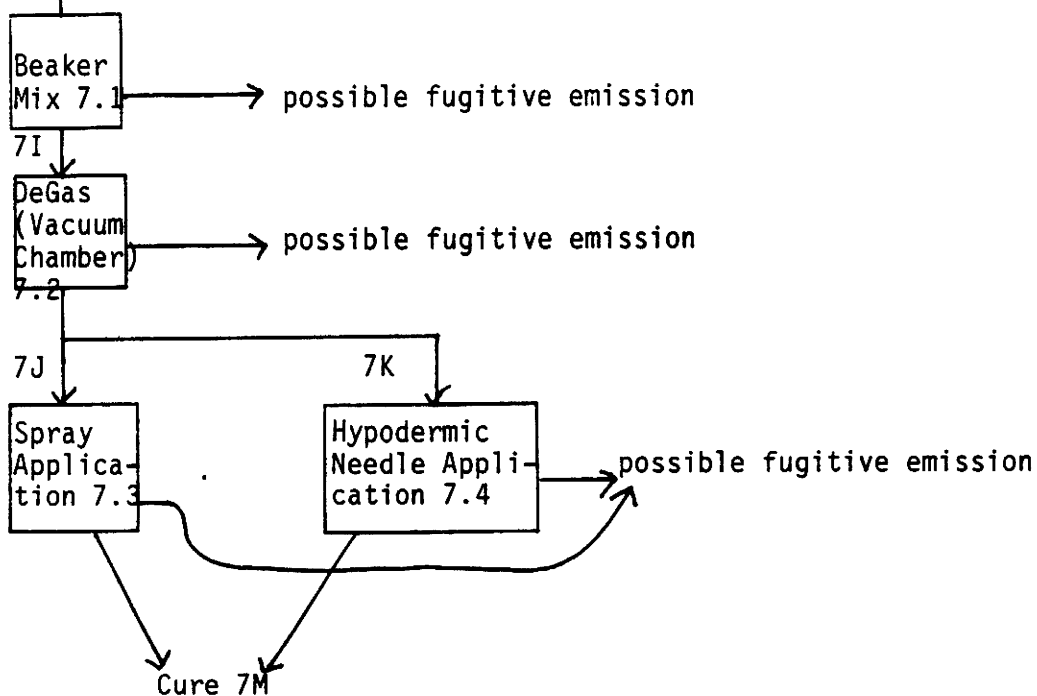
☐ Process type Urethane Coating

Materials (SMRD 900 SERIES)

7A, 7B, 7C,

7D, 7E, 7F,

7G, 7H



☐ Mark (X) this box if you attach a continuation sheet.

7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane Coating

<u>Unit Operation ID Number</u>	<u>Typical Equipment Type</u>	<u>Operating Temperature Range (°C)</u>	<u>Operating Pressure Range (mm Hg)</u>	<u>Vessel Composition</u>
<u>7.1</u>	<u>container (beaker)</u>	<u>ambient</u>	<u>atmospheric</u>	<u>-</u>
<u>7.2</u>	<u>vacuum chamber</u>	<u>ambient</u>	<u>3</u>	<u>-</u>
<u>7.3</u>	<u>spray booth</u>	<u>ambient</u>	<u>atmospheric</u>	<u>-</u>
<u>7.4</u>	<u>needle</u>	<u>ambient</u>	<u>atmospheric</u>	<u>-</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Urethane Coating

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
<u>7A-H</u>	<u>Mix components</u>	<u>OL</u>	<u>22</u>
<u>7I</u>	<u>degas mixture</u>	<u>OL</u>	<u>22</u>
<u>7J</u>	<u>spray</u>	<u>OL</u>	<u>11</u>
<u>7K</u>	<u>hypodermic needle application</u>	<u>OL</u>	<u>11</u>
<u>7M</u>	<u>curing</u>	<u>S0</u>	<u>22</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

¹Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure)
 S0 = Solid
 SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
 If a process block flow diagram is provided for more than one process type, photocopy
 this question and complete it separately for each process type. (Refer to the
 CBI instructions for further explanation and an example.)

☐ Process type Urethane Coating

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concen- trations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
7A-H	Solithane 113	40 + 100%	N/A	N/A
	C113-300		N/A	N/A
	Additives	60 + 0%	N/A	N/A

7.06 continued below

☐ Mark (X) this box if you attach a continuation sheet.

7.06 (continued)

¹For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column b. (Refer to the instructions for further explanation and an example. Refer to the Glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
1	Aluminum Oxide	60 to 0%
	Dibutyl Dilaurate	
2	Calco Fluor	60 to 0%
	Cab-o-sil	
3	Magnesium Oxide	60 to 0%
	Tri-isopropanol	
4		
5		

²Use the following codes to designate how the concentration was determined:

A = Analytical
E = Engineering/Calculation

³Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

☐ Mark (X) this box if you attach a continuation sheet.

**SECTION 8 RESIDUAL TREATMENT GENERATION, CHARACTERIZATION, TRANSPORTATION, AND
MANAGEMENT**

General Instructions:

For questions 8.04-8.06, provide a separate response for each residual treatment block flow diagram provided in question 8.01, 8.02 or 8.03. Identify the process type from which the information is extracted.

For questions 8.05-8.33, the Stream Identification Codes are those process streams listed in either the Section 7 or Section 8 block flow diagrams which contain residuals for each applicable waste management method.

For questions 8.07-8.33, if residuals are combined before they are handled, list those Stream Identification Codes on the same line.

Questions 8.09-8.33 refer to the waste management activities involving the residuals identified in either the Section 7 or Section 8 block flow diagrams. Not all Stream Identification Codes used in the sample answers (e.g., for the incinerator questions) have corresponding process streams identified in the block flow diagram(s). These Stream Identification codes are for illustrative purposes only.

For questions 8.11-8.33, if you have provided the information requested on one of the EPA Office of Solid Waste surveys listed below within the three years prior to your reporting year, you may submit a copy or reasonable facsimile in lieu of answering those questions which the survey addresses. The applicable surveys are: (1) Hazardous Waste Treatment, Storage, Disposal, and Recycling Survey; (2) Hazardous Waste Generator Survey; or (3) Subtitle D Industrial Facility Mail Survey.

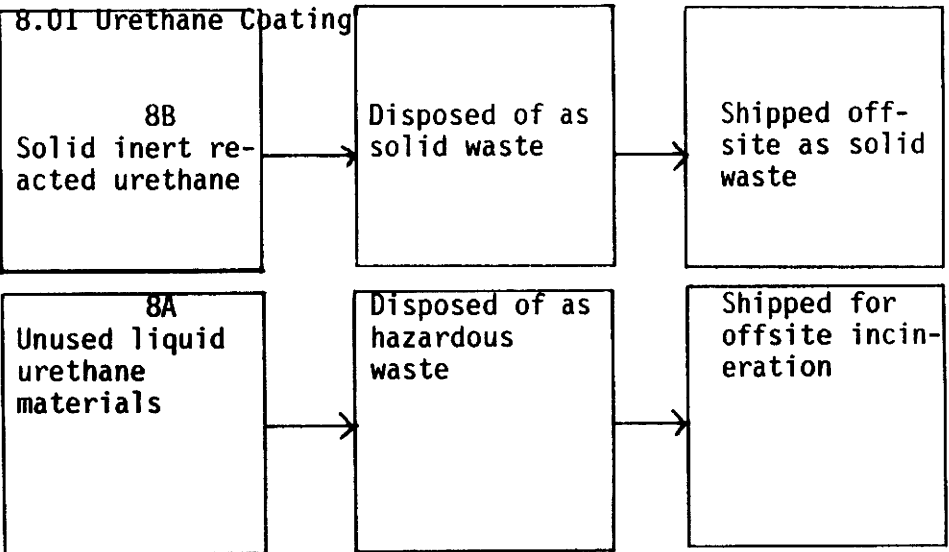
☐ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type



☐ Mark (X) this box if you attach a continuation sheet.

8.04 Describe the typical equipment types for each unit operation identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type _____

Unit Operation ID Number
(as assigned in questions
8.01, 8.02, or 8.03)

Typical Equipment Type

☐ Mark (X) this box if you attach a continuation sheet.

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

¹Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

²Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)
GU = Gas (uncondensable at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

³For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
<u>1</u>	<u>Aluminum oxide</u>	} <u>60% to 0%</u>
	<u>Dibutyl tin dilaurate</u>	
<u>2</u>	<u>Calco fluor</u>	} <u>60% to 0%</u>
	<u>Cab-o-sil</u>	
<u>3</u>	<u>Magnesium oxide</u>	} <u>60% to 0%</u>
	<u>Tri-isopropanol</u>	
<u>4</u>		
<u>5</u>		

⁴Use the following codes to designate how the concentration was determined:

A = Analytical result

E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

⁵Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

⁶Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> <u>(± ug/l)</u>
<u>1</u>	NA	NA
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[illegible]

²Use the codes provided in Exhibit 8-2 to designate the management methods

58

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1						
2						
3						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

No on-site incinerators

Incinerator	Air Pollution Control Device ¹	Types of Emissions Data Available
1	NA	NA
2	NA	NA
3	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1
No 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)
E = Electrostatic precipitator
O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

8.24 Stack Parameters -- Provide the following information on stack parameters for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).
CBI Photocopy this question and complete it separately for each incinerator.

☐ Incinerator number _____

Stack height _____ m

Stack inner diameter (at outlet) _____ m

Exhaust temperature _____ °C

Vertical or horizontal stack _____ (V or H)

Annual emissions for the listed substance _____ kg/yr

Height of attached or adjacent building _____ m

Width of attached or adjacent building _____ m

Building cross-sectional area _____ m²

Emission exit velocity _____ m/sec

Average emission rate of exit stream _____ kg/min

Maximum emission rate of exit stream _____ kg/min

Average duration of maximum emission rate of exit stream . _____ min

Frequency of maximum emission rate of exit stream _____ times/year

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 9 WORKER EXPOSURE

General Instructions:

Questions 9.03-9.25 apply only to those processes and workers involved in manufacturing or processing the listed substance. Do not include workers involved in residual waste treatment unless they are involved in this treatment process on a regular basis (i.e., exclude maintenance workers, construction workers, etc.).

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

[]

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Age at hire	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Work history of individual before employment at your facility	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Sex	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Race	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Job titles	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Start date for each job title	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>10 years after termination</u>
End date for each job title	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>10 yrs. after termination</u>
Work area industrial hygiene monitoring data	<u>N/A</u>	<u>X</u>	<u>app. 1976</u>	<u>Permanent</u>
Personal employee monitoring data	<u>N/A</u>	<u>X</u>	<u>app. 1976</u>	<u>Permanent</u>
Employee medical history	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Employee smoking history	<u>N/A</u>	<u>X</u>	<u>1984</u>	<u>Permanent</u>
Accident history	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Retirement date	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>10 yrs. after date of death</u>
Termination date	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>Permanent</u>
Vital status of retirees	<u>N/A</u>	<u>X</u>	<u>-</u>	<u>-</u>
Cause of death data	<u>N/A</u>	<u>X</u>	<u>1959</u>	<u>10 yrs. after date of death</u>

No Hourly Workers

[] Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site use as reactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site use as nonreactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site preparation of products	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>250 *</u>	<u>4</u>	<u>1,460</u>

* of a 6 to 7% concentration of TDI

☒ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

<u>Labor Category</u>	<u>Descriptive Job Title</u>
A	<u>Chemical Engineer, Materials Engineering</u>
B	<u>Materials Technician, Materials Engineering</u>
C	<u>Materials Specialist, Materials Engineering</u>
D	<u>Supervisor, Shop and/or Laboratory</u>
E	<u>Lab Tech, Development Lab</u>
F	<u>Encapsulation Operator</u>
G	<u>Harness Operator</u>
H	<u>PWB Fabricator</u>
I	<u>Black Box Fabricator</u>
J	<u>Mechanical Fabricator</u>
K	Blanket Fabricator
L	Pre Assembly Technician
M	Composite Fabricator
N	Transponder Assembler
O	Dispatcher
P	Assembly Technician
Q	Inspectors
R	Production Control

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site use as reactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>3-4 *</u>	<u>1</u>	<u>100</u>
On-site use as nonreactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site preparation of products	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

* of a 6-7% concentration of TDI

☒ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site use as reactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>50*</u>	<u>46</u>	<u>16,000</u>
On-site use as nonreactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site preparation of products	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

* of a 6-7% concentration of TDI

☒ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site use as reactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>2*</u>	<u>24</u>	<u>19,750</u>
On-site use as nonreactant	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
On-site preparation of products	Enclosed	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Controlled Release	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Open	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

* of a 6-7% concentration of TDI

☒ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	N/A	N/A	N/A
	Controlled Release	N/A	N/A	N/A
	Open	N/A	N/A	N/A
On-site use as reactant	Enclosed	N/A	N/A	N/A
	Controlled Release	N/A	N/A	N/A
	Open	24*	9	1,350
On-site use as nonreactant	Enclosed	N/A	N/A	N/A
	Controlled Release	N/A	N/A	N/A
	Open	N/A	N/A	N/A
On-site preparation of products	Enclosed	N/A	N/A	N/A
	Controlled Release	N/A	N/A	N/A
	Open	N/A	N/A	N/A

* of a 6-7% concentration of TDI

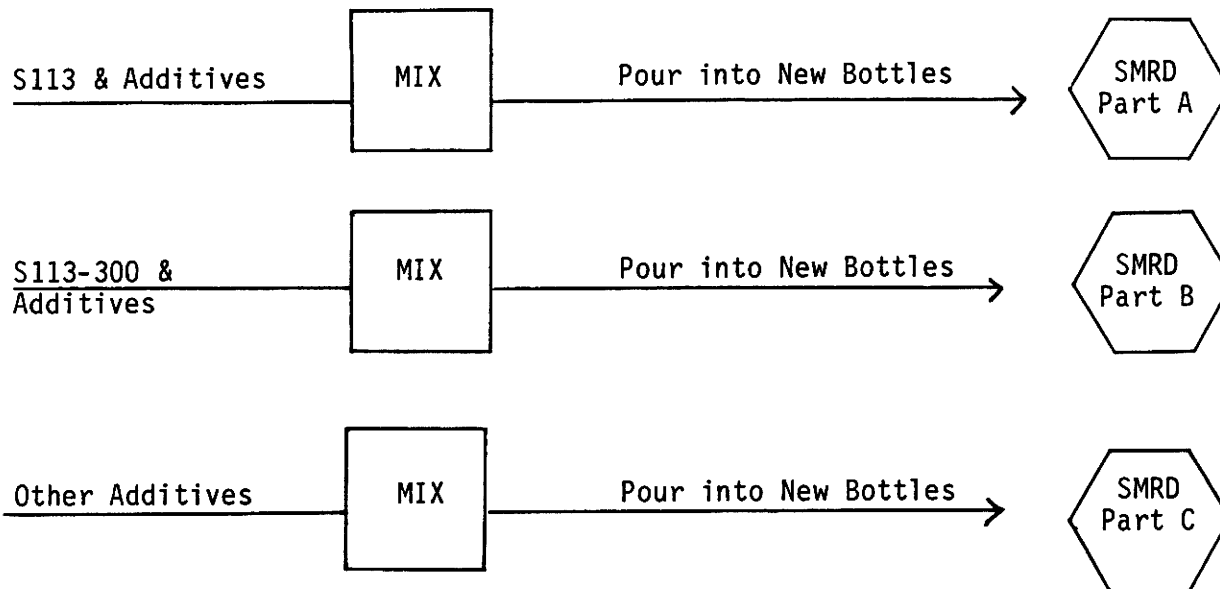
☒ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Mixing and Kit Preparation

Work Area 1 - Materials Engineering Lab



☒ Mark (X) this box if you attach a continuation sheet.

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type A11

Work Area ID

Description of Work Areas and Worker Activities

1

Materials Engineering Lab, Lab hoods and work benches, workers mix S113 with additives and repackage into SMRD kits

2

Development Lab, Plating tanks, PWB fabrication etc., workers mix components of SMRD kits and pour into molds

3

Electronic Shop, work benches, lab hoods, workers mix components of SMRD kits and apply by spray or hypodermic to *

4

Preassembly Shop, spacecraft hardware and fixtures, work benches, small machines, workers apply SMRD to spacecraft**

5

Final Assembly, High Bay, finished spacecraft, workbenches, test equipment, workers apply SMRD to spacecraft.

6

7

8

9

10

*electronic components

**space craft sub-assemblies

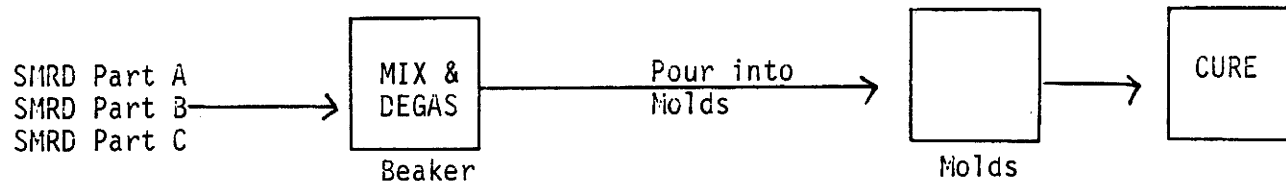
☐ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Mixing and Component Fabrication

Work Area 2 - Development Laboratory



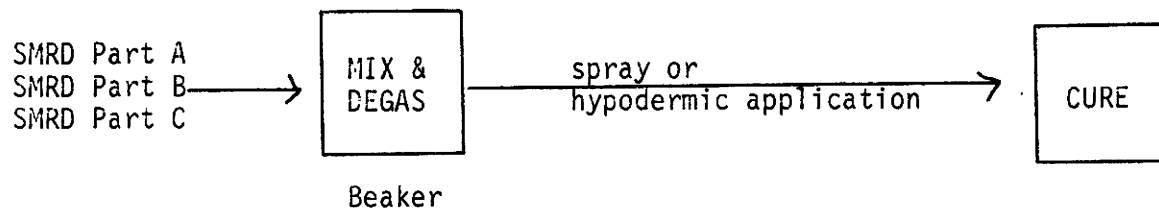
☒ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Mixing and Application to Electronic Components

Work Area 3 - Electronics Shop



☒ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Application to Spacecraft Components

Work Area 4 - PreAssembly

Pre-Mixed
SMRD

Hypodermic application



CURE

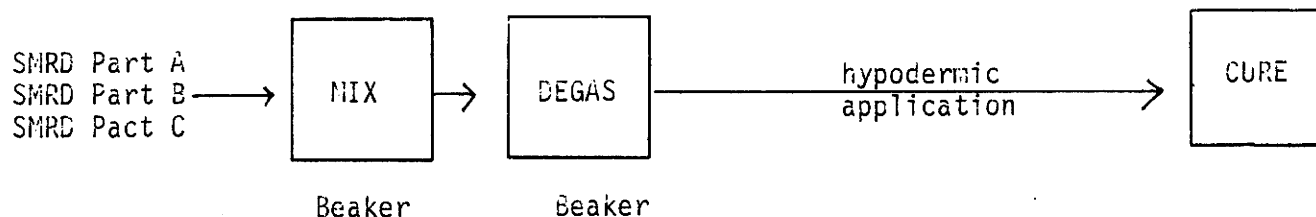
☒ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Mixing and application to spacecraft

Work Area 5 - Final Assembly



☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Mixing and Kit Preparation

Work area Materials Engineering Lab

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
B	2	direct skin contact	OL	D	100
C	1	direct skin contact	OL	D	100
A	1	direct skin contact	OL	A	100

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)	SY = Sludge or slurry
GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)	AL = Aqueous liquid
SO = Solid	OL = Organic liquid
	IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less	D = Greater than 2 hours, but not exceeding 4 hours
B = Greater than 15 minutes, but not exceeding 1 hour	E = Greater than 4 hours, but not exceeding 8 hours
C = Greater than one hour, but not exceeding 2 hours	F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI ☐ Process type Component Fabrication
 Work area Development Lab

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
D	1	skin contact	OL	A	12
E	3	skin contact	OL	A	12
E	1	skin contact	OL	C	12

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Mixing and Application to Electronic Components
 Work area Electronics Shop

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
D	1	skin contact	OL	B	250
H&I	38	skin contact	OL	B	250
F	2	skin contact	OL	F	250
G	6	skin contact	CL	A	250

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Application to Spacecraft Components

Work area PreAssembly Shop

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
D	1	skin contact	OL	A	150
L	12	skin contact	OL	B	150
K	3	skin contact	OL	A	150
M	2	skin contact	OL	E	300
N	7	skin contact	OL	C	150

¹ Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensible at ambient temperature and pressure)	SY = Sludge or slurry
GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)	AL = Aqueous liquid
SO = Solid	OL = Organic liquid
	IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

² Use the following codes to designate average length of exposure per day:

A = 15 minutes or less	D = Greater than 2 hours, but not exceeding 4 hours
B = Greater than 15 minutes, but not exceeding 1 hour	E = Greater than 4 hours, but not exceeding 8 hours
C = Greater than one hour, but not exceeding 2 hours	F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and application to spacecraft

Work area Final Assembly

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
D	2	skin contact	OL	E	250
O	1	skin contact	OL	E	250
P	27	skin contact	OL	E	250
Q	3	skin contact	OL	E	250
R	3	skin contact	OL	E	250

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and Kit Preparation

Work area Materials Engineering Lab

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>B</u>	<u>No Data</u>	<u>No Data</u>
<u>C</u>	<u>No Data</u>	<u>No Data</u>
<u>A</u>	<u>No Data</u>	<u>No Data</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and Component Fabrication

Work area Development Lab

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>D</u>	<u>No Data</u>	<u>No Data</u>
<u>E</u>	<u>No Data</u>	<u>No Data</u>
<u>F</u>	<u>No Data</u>	<u>No Data</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
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☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and Application to Electronic Components

Work area Electronics Shop

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>D</u>	<u>No Data</u>	<u>No Data</u>
<u>H&I</u>	<u>No Data</u>	<u>No Data</u>
<u>F</u>	<u>No Data</u>	<u>No Data</u>
<u>G</u>	<u>No Data</u>	<u>No Data</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
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☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Application to Spacecraft Components

Work area PreAssembly Shop

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>D</u>	<u>No Data</u>	<u>No Data</u>
<u>L</u>	<u>No Data</u>	<u>No Data</u>
<u>K</u>	<u>No Data</u>	<u>No Data</u>
<u>M</u>	<u>No Data</u>	<u>No Data</u>
<u>N</u>	<u>No Data</u>	<u>No Data</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
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<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and Application to Spacecraft

Work area Final Assembly

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>D</u>	<u>No Data</u>	<u>No Data</u>
<u>O</u>	<u>No Data</u>	<u>No Data</u>
<u>P</u>	<u>No Data</u>	<u>No Data</u>
<u>Q</u>	<u>No Data</u>	<u>No Data</u>
<u>R</u>	<u>No Data</u>	<u>No Data</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

NO DATA

☐

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples ¹	Analyzed In-House (Y/N)	Number of Years Records Maintained
No monitoring data available for this substance at this time.						
Personal breathing zone	NA	NA	NA	NA	NA	NA
General work area (air)						
Wipe samples						
Adhesive patches						
Blood samples						
Urine samples						
Respiratory samples						
Allergy tests						
Other (specify)						
Other (specify)						
Other (specify)						
	↓	↓	↓	↓	↓	↓

¹Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist

B = Insurance carrier

C = OSHA consultant

D = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

☐ Sample Type Sampling and Analytical Methodology

No monitoring data available for this substance at this time.

NA
↓

NA
↓

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

<input type="checkbox"/> <u>Equipment Type</u> ¹	<u>Detection Limit</u> ²	<u>Manufacturer</u>	<u>Averaging Time (hr)</u>	<u>Model Number</u>
No monitoring conducted for this substance at this time.			NA	NA
NA	NA	NA	↓	↓
↓	↓	↓	↓	↓
↓	↓	↓	↓	↓

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) _____

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) _____
- I = Other (specify) _____

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter ($\mu\text{g}/\text{m}^3$)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

Complete physical by MD

NA

Blood work

Vital capacity tests

Chest X-ray

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type Mixing and Kit Preparation

Work area Materials Engineering

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>1988</u>	<u>N</u>	<u>NA</u>
General dilution	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____	_____	_____	_____	_____

[] Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type Mixing and Component Fabrication
Work area Development Lab

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
General dilution	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____				

[] Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and Application to Electronic Components
Work area Electronics Shop

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
General dilution	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify)	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
_____	_____	_____	_____	_____
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify)	_____	_____	_____	_____
_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Application to Spacecraft components
Work area

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>1985</u>	<u>N</u>	<u>NA</u>
General dilution	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and application to spacecraft
Work area Final Assembly

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
General dilution	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) _____	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Vessel emission controls	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Mechanical loading or packaging equipment	<u>N</u>	<u>NA</u>	<u>N</u>	<u>NA</u>
Other (specify) <u>use of hypodermics</u>	<u>Y</u>	<u>NA</u>	<u>N</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type No equipment modifications for any process in last 3 yrs.

Work area

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
NA	NA
↓	↓

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area

CBI

☐ Process type Mixing and Kit Preparation
Work area Materials Engineering

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>N</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>N</u>
Coveralls	<u>N</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>Lab coats</u>	<u>Y</u>
<u></u>	<u></u>

☒ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and Component Fabrication

Work area Development Lab

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	N
Safety goggles/glasses	Y
Face shields	N
Coveralls	N
Bib aprons	N
Chemical-resistant gloves	N
Other (specify)	
Lab coats	Y

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Mixing and application to electronic components

Work area

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>N</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>N</u>
Coveralls	<u>N</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
<u>Lab coats</u>	<u>Y</u>
<u></u>	<u></u>
<u></u>	<u></u>

☐ Mark (X) this box if you attach a continuation sheet.

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

[] Process type Application to spacecraft components

Work area Preassembly Shop

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	N
Safety goggles/glasses	Y
Face shields	N
Coveralls	N
Bib aprons	N
Chemical-resistant gloves	Y
Other (specify)	
<u>Lab coats</u>	<u>Y</u>

100

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

[] Process type Mixing and Application to Spacecraft

Work area Final Assembly

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	N
Safety goggles/glasses	Y
Face shields	N
Coveralls	N
Bib aprons	N
Chemical-resistant gloves	Y
Other (specify)	
<u>Lab coats</u>	<u>Y</u>

100

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI Respirators not used for any processes

☐ Process type _____

Work Area	Respirator Type	Average Usage ¹	Fit Tested (Y/N)	Type of Fit Test ²	Frequency of Fit Tests (per year)
NA	NA	NA	NA	NA	NA
↓	↓	↓	↓	↓	↓
↓	↓	↓	↓	↓	↓
↓	↓	↓	↓	↓	↓

¹Use the following codes to designate average usage:

A = Daily
 B = Weekly
 C = Monthly
 D = Once a year
 E = Other (specify) _____

²Use the following codes to designate the type of fit test:

QL = Qualitative
 QT = Quantitative

☐ Mark (X) this box if you attach a continuation sheet.

- 9.16 Respirator Maintenance Program -- For each type of respirator used when working with the listed substance, specify the frequency of the maintenance activity, and the person who performs the maintenance activity. Photocopy this question and complete it separately for each respirator type.

Respirator type Respirators not used for any processes

<u>Respirator Maintenance Activity</u>	<u>Frequency¹</u>	<u>Person Performing Activity²</u>
Cleaning	<u>NA</u>	<u>NA</u>
Inspection	<u> </u>	<u> </u>
Replacement	<u> </u>	<u> </u>
Cartridge/Canister	<u> </u>	<u> </u>
Respirator unit	<u> </u>	<u> </u>

¹Use the following codes to designate the frequency of maintenance activity:

A = After each use

B = Weekly

C = Other (specify) _____

²Use the following codes to designate who performs the maintenance activity:

A = Plant industrial hygienist

B = Supervisor

C = Foreman

D = Other (specify) _____

box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Mixing and Kit Preparation

Work area Materials Engineering

Worker training programs; All work required to be performed in laboratory hood that has been verified by the Industrial Hygienist to have adequate capture velocity; Listed substance only used in small quantities.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Mixing and Kit preparation

Work area Materials Engineering

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	_____	<u>X</u>	_____	_____
Vacuuming	<u>X</u>	_____	_____	_____
Water flushing of floors	<u>X</u>	_____	_____	_____
Other (specify)	<u>NA</u>	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Yes 1

No 2

Emergency exposure

Yes 1

No 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes 1

☒ No 2

If yes, where are copies of the plan maintained? NA

Has this plan been coordinated with state or local government response organizations?
Circle the appropriate response.

Yes 1

☒ No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Mixing and Component Fabrication

Work area Development Lab

Entrance restricted to authorized workers; workers trained and certified; all work
required to be performed in a hood verified by the Industrial Hygiene staff to
have adequate capture velocity; listed substance only used in very small quantity;
medical monitoring

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Mixing and Component FABrication

Work area Development Lab

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
<u>Sweeping</u>	<u>X</u>	<u></u>	<u></u>	<u></u>
<u>Vacuuming</u>	<u>X</u>	<u></u>	<u></u>	<u></u>
<u>Water flushing of floors</u>	<u>X</u>	<u></u>	<u></u>	<u></u>
<u>Other (specify)</u>	<u>X</u>	<u></u>	<u></u>	<u></u>
<u>Clean work benches</u>	<u></u>	<u></u>	<u></u>	<u></u>

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Mixing and application to electronic parts
Work area Electronics Shop

Limited access by authorized workers; training and certification of workers; all work required to be performed in a lab hood verified by the Industrial Hygiene staff to have adequate capture velocity; listed substance used in small quantities; medical monitoring.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Mixing and Application to electronic parts
Work area Electronics Shop

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Vacuuming	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Water flushing of floors	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Other (specify)				
<u>Clean work benches</u>	<u> </u>	<u>X</u>	<u> </u>	<u> </u>

*Clean room, cleaning required very infrequently.

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Application to spacecraft components

Work area Preambly Shop

Semi-restricted entrance; workers trained and certified; listed substance

used in very small quantities; medical monitoring.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Application to spacecraft components

Work area Preambly Shop

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
<u>Sweeping</u>	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
<u>Vacuuming</u>	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
<u>Water flushing of floors</u>	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
<u>Other (specify)</u>				
<u>Clean benches</u>	<u> </u>	<u>X</u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Mixing and application to spacecraft

Work area Final assembly

Restricted work area, training and certification of workers; listed

substance only used in very small quantities; medical monitoring.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Mixing and application to spacecraft

Work area Final Assembly

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Vacuuming	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Water flushing of floors	<u>X</u>	<u> </u>	<u> </u>	<u> </u>
Other (specify)				
<u>Clean work benches</u>	<u>X</u>	<u> </u>	<u> </u>	<u> </u>

*Clean room, cleaning required very infrequently.

☐ Mark (X) this box if you attach a continuation sheet.

9.24 Who is responsible for safety and health training at your facility? Circle the appropriate response.

- Plant safety specialist 1
Insurance carrier 2
OSHA consultant 3
Other (specify) _____ 4

9.25 Who is responsible for the medical program at your facility? Circle the appropriate response.

- Plant physician 1
Consulting physician 2
Plant nurse 3
Consulting nurse 4
Other (specify) _____ 5

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area 1
- Urban area (2)
- Residential area (3)
- Agricultural area 4
- Rural area 5
- Adjacent to a park or a recreational area 6
- Within 1 mile of a navigable waterway 7
- Within 1 mile of a school, university, hospital, or nursing home facility (8)
- Within 1 mile of a non-navigable waterway 9
- Other (specify) _____ 10

☐ Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 040 ° 05 ' 26 "

Longitude 075 ° 24 ' 01 "

UTM coordinates Zone _____, Northing _____, Easting _____

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

NA

Average annual precipitation inches/year

Predominant wind direction

10.04 Indicate the depth to groundwater below your facility.

NA Depth to groundwater meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of Y, N, and NA.)

CBI

☐

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	NA	NA	NA
Importing	NA	NA	NA
Processing	Y	NA	NA
Otherwise used	NA	NA	NA
Product or residual storage	NA	NA	NA
Disposal	NA	NA	NA
Transport	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

☐ Quantity discharged to the air kg/yr \pm ____ %
Quantity discharged in wastewaters kg/yr \pm ____ %
Quantity managed as other waste in on-site
treatment, storage, or disposal units kg/yr \pm ____ %
Quantity managed as other waste in off-site
treatment, storage, or disposal units kg/yr \pm ____ %

☐ Mark (X) this box if you attach a continuation sheet.

10.07 Complete the following table for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type _____

Process Stream ID Code	Media Affected ¹	Average Amount of Listed Substance Released ²	Number of Batches/Year	Days of Operation Year
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

¹Use the following codes to designate the media affected:

- A = Air
- B = Land
- C = Groundwater
- D = POTW
- E = Navigable waterway
- F = Non-navigable waterway
- G = Other (specify) _____

²Specify the average amount of listed substance released to the environment and use the following codes to designate the units used to measure the release:

- A = kg/day
- B = kg/batch

☐ Mark (X) this box if you attach a continuation sheet.

CBI

[]

[illegible]

No control technologies are used.

[]

PART B RELEASE TO AIR

- 10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

[]

Process type All processes

Point Source
ID Code

NA

Description of Emission Point Source

NA

No point source emissions.

[] Mark (X) this box if you attach a continuation sheet.

114

CBI

¹Use the following codes to designate physical state at the point of release:
G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify)

³Duration of emission at any level of emission

⁴Average Emission Factor — Provide estimated (\pm 25 percent) emission factor (kg of emission per kg of production of listed substance)

CBI

[]

[illegible]²Width of attached or adjacent building

H = Horizontal

V = Vertical

☐ Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

☐

Point source ID code NA

Size Range (microns)

Mass Fraction (% ± % precision)

< 1
≥ 1 to < 10
≥ 10 to < 30
≥ 30 to < 50
≥ 50 to < 100
≥ 100 to < 500
≥ 500

NA

NA

NA

NA

NA

NA

NA

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type NA
Percentage of time per year that the listed substance is exposed to this process type %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed	NA					
Mechanical						
Double mechanical ²						
Compressor seals ¹						
Flanges						
Valves						
Gas ³						
Liquid						
Pressure relief devices ⁴ (Gas or vapor only)						
Sample connections						
Gas						
Liquid						
Open-ended lines ⁵ (e.g., purge, vent)						
Gas						
Liquid						

¹List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

² If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

³ Conditions existing in the valve during normal operation

⁴Report all pressure relief devices in service, including those equipped with control devices

⁵Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

[]

[illegible]

¹ Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

²The EPA assigns a control efficiency of 100 percent for equipment leaks control with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

☐ Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type NA

Equipment Type	Leak Detection Concentration (ppm or mg/m ³) Measured at Inches From Source	Detection Device	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
Pump seals					
Packed	NA	NA	NA	NA	NA
Mechanical					
Double mechanical					
Compressor seals					
Flanges					
Valves					
Gas					
Liquid					
Pressure relief devices (gas or vapor only)					
Sample connections					
Gas					
Liquid					
Open-ended lines					
Gas					
Liquid					

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer
FPM = Fixed point monitoring
O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

Vessel Type ¹	Floating Roof Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Vessel Volume (l)	Operating Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹Use the following codes to designate vessel type:

F = Fixed roof
 CTF = Contact internal floating roof
 NCIF = Noncontact internal floating roof
 EFR = External floating roof
 P = Pressure vessel (indicate pressure rating)
 H = Horizontal
 U = Underground

²Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary
 MS2 = Shoe-mounted secondary
 MS2R = Rim-mounted, secondary
 LM1 = Liquid-mounted resilient filled seal, primary
 LM2 = Rim-mounted shield
 LMW = Weather shield
 VM1 = Vapor mounted resilient filled seal, primary
 VM2 = Rim-mounted secondary
 VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

C = Calculations
 S = Sampling

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				
<u>6</u>				
	↓	↓	↓	↓

10.24 Specify the weather conditions at the time of each release.

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	_____	_____	_____	_____	_____
<u>2</u>	_____	_____	_____	_____	_____
<u>3</u>	_____	_____	_____	_____	_____
<u>4</u>	_____	_____	_____	_____	_____
<u>5</u>	_____	_____	_____	_____	_____
<u>6</u>	_____	_____	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

- 10.25 Complete the following information for each media into which the listed substance was released. Any volatile substance that was released to land, but that was expected to volatilize, should be listed as a release to air.

Release No.

<u>Media</u>	<u>Quantity (kg)</u>	<u>Method of Release</u>	<u>Migration Beyond Boundaries (Y/N)</u>	<u>Quantity Migrated (kg)</u>
Land				
Air				
Groundwater				
Surface water				

- 10.26 Specify the physical state and concentration of the listed substance at the time and point of release.

Release No.

Point of release

Physical state

Concentration (%)

☐ Mark (X) this box if you attach a continuation sheet.

10.33 Indicate which of the prevention practices and policies listed in question 10.32 were ineffective in preventing the release from reaching the environment.

Release No. _____

10.34 Describe all repairs and/or preventive measures (management practices, operational changes, etc.) made to equipment or operations as a result of the release.

Release No. _____

10.35 Describe additional preventive measures that will be taken to minimize the possibilities of recurrence.

Release No. _____

☐ Mark (X) this box if you attach a continuation sheet.

1	2
3	4
5	6

Continuation
Sheet
Page Numbers
(2)

4.02

25

132

MORTON THIOKOL, INC.
MORTON CHEMICAL DIVISION
333 WEST WACKER DRIVE
CHICAGO, IL 60606-1292

MATERIAL SAFETY DATA SHEET
DOCUMENT PREPARED: 02/24/89
PRODUCT: SOLITHANE 113
PAGE 1

SECTION 1: PRODUCT INFORMATION

PRODUCT NAME: SOLITHANE 113 EFFECTIVE DATE: 02/24/89
CHEMICAL NAME: Isocyanate Terminated Polyol SUPERCEDES: 12/87
PRODUCT USE: Coatings and Castings
EMERGENCY PHONE: (815)338-1800 OTHER INFORMATION PHONE: (312)807-3421
(24 hours/day)

SECTION 2: HAZARDOUS INGREDIENTS

CHEMICAL NAME/COMMON NAME	% [1]	CAS NO.	OSHA PEL	ACGIH TLV	OTHER
*Toluene Diisocyanate/ TDI	6-7	584-84-9	0.02 ppm [2]	0.005 ppm	TLV-STEL = 0.02 ppm

SECTION 3: PHYSICAL DATA [1]

% NON-VOLATILES: 93
VAPOR DENSITY (Air = 1): > 6
pH: Not Applicable
BOILING POINT: 482 F (250 C) @ 760 mm Hg
VAPOR PRESSURE: Not Applicable
SOLUBILITY IN WATER: Not Applicable
SPECIFIC GRAVITY (water = 1): 1.073
EVAPORATION RATE (nBUOAc = 1): < 1
APPEARANCE AND ODOR: Pale Yellow; Irritating Pungent Odor

SECTION 4: FIRE AND EXPLOSION HAZARDS

FLASH POINT: > 200 F (94 C) FLAMMABLE LIMITS:
METHOD USED: Setaflash LEL: Not Applicable
UEL: Not Applicable

- [1] Typical amount, not a specification.
[2] Governed by a ceiling limit value (C) - The value which should not be exceeded during any part of the working exposure.

EXTINGUISHING MEDIA: Use foam, dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: Full emergency equipment with NIOSH/MSHA approved self-contained full-face positive pressure breathing apparatus should be worn.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, oxides of nitrogen, possibly aromatic amines, aldehydes, ammonia, and small amounts of hydrogen cyanide under burning conditions.

SECTION 5: HEALTH HAZARD DATA

ORAL TOXICITY:

Unknown for product mixture. Animal experiments indicate that the toxic effects of TDI or polymeric isocyanates when ingested are slight. The LD50 in rats for TDI is 5840 mg/kg. From these experiments, it is believed that ingestion of TDI or polymeric isocyanates would not be fatal to humans, but could result in irritation and corrosive action on the mouth and stomach tissue.

TDI: orl-rat: LD50: 5800 mg/kg (R.T.E.C.S. No. CZ 6300000)

SECTION 5: HEALTH HAZARD DATA, continued

DERMAL TOXICITY:

Unknown for product mixture. Isocyanates react with skin protein and tissue moisture. If not promptly removed, liquid spills on the skin can cause reddening, swelling, and blistering of the exposed skin. REPEATED SKIN CONTACT HAS CAUSED SKIN SENSITIZATION IN HUMANS AND SHOULD BE AVOIDED.

TDI: skn-rbt: 500 mg/24H MOD

EYE:

Unknown for product mixture. EYE CONTACT - LIQUID ISOCYANATES SPLASHED INTO THE EYES CAN BE HARMFUL TO THE DELICATE EYE TISSUE AND MUST BE AVOIDED. Injury results from reaction of the isocyanate with the eye fluid which may dehydrate the tissue and result in severe irritation of the eyelid and possible damage to the cornea (corneal opacity). Exposure to high concentrations of isocyanate vapor can lead to formation of solid crystals in the eye fluid causing mechanical irritation of the eyes hours after exposure.

TDI: eye-rbt: 100 mg SEV

INHALATION TOXICITY:

Unknown for product mixture. Inhalation of isocyanate vapors can produce severe irritation of the mucous membranes in the respiratory tract, i.e. nose, throat, and lungs. Exposure of humans to concentrations of isocyanate vapor in excess of the maximum acceptable concentration has caused illness characterized by breathlessness, chest discomfort and reduced pulmonary function. Massive exposure to high concentrations has caused, within minutes, irritation of the trachea and larynx and severe coughing spasms. Massive exposure may also lead to bronchitis, bronchial spasm, and/or pulmonary edema (chemical pneumonitis). Concentrations of isocyanate vapors should be maintained below the TLV by engineering controls. Can cause sensitization in humans.

TDI: ihl-hmn: TClO: 0.02 ppm/2Y:PUL
ihl-hmn: TClO: 0.5 ppm:IRR

References: N.I.O.S.H. - R.T.E.C.S., 1982.
Sax: Dangerous Properties of Industrial Materials (1984)

CHRONIC TOXICITY:

Unknown for product mixture. Toluene diisocyanate (TDI) is considered a suspect carcinogen as tested by National Toxicology Program, 1983, in rats and female mice. Administered by gavage to rats, TDI caused subcutaneous neoplasms or cancers in both sexes. Additionally, males developed pancreatic neoplasms and females, pancreatic, liver and mammary neoplasms. In mice similarly exposed, TDI caused circulatory neoplasms and cancers (combined) and liver neoplasms in females but was not carcinogenic to males. (NTP 1983 Program Tech Report on Carcinogenic Study of Commercial Grade of TDI.)

EFFECTS OF OVEREXPOSURE:

INGESTION:

Unknown for product mixture. May cause gastrointestinal irritation, nausea, drowsiness, and possibly unconsciousness.

SKIN CONTACT:

Unknown for product mixture. Repeated or prolonged contact may cause skin dryness, redness, swelling and dermatitis. Isocyanate sensitization is possible.

SECTION 5: HEALTH HAZARD DATA, continued

EYE CONTACT:

Unknown for product mixture. Vapor and liquid are severe eye irritants. May produce severe eye irritation and corneal edema.

INHALATION:

Unknown for product mixture. Vapors are severe nasal and respiratory irritants. High exposure to the solvent vapors may result in headache, narcotic effect, and unconsciousness. Asthmatic-type symptoms may develop as a reaction to residual isocyanate monomers.

ACUTE SYSTEMIC EFFECTS:

May cause irritation of the eyes, nose and throat. Severe overexposure may cause weakness, drowsiness and unconsciousness.

CHRONIC SYSTEMIC EFFECTS:

Signs and symptoms from chronic exposure resemble those from acute mishaps but are in part systemically more severe. Extended exposure to isocyanate vapors may cause sensitization resulting in asthmatic symptoms.

NOTES:

Medical conditions generally recognized as being aggravated by exposure:

- Toxicity testing on the product mixture has not been conducted. Comments in SECTION V pertain only to the constituent(s) listed in SECTION II.
- Persons with pre-existing skin disorders may be more susceptible to the effects of the isocyanate.
- In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of isocyanate vapors might cause exacerbation of symptoms due to irritant properties. Individuals with pre-existing pulmonary problems such as asthma may also be more susceptible to the isocyanate.

SECTION 6: EMERGENCY HEALTH AND FIRST AID PROCEDURES

EYE CONTACT: May cause eye irritation and if not removed immediately can produce burns. Immediately rinse eyes with constant stream of fresh water for 15 minutes, lifting upper and lower eyelids frequently. Consult a physician immediately.

SKIN CONTACT: Remove contaminated clothing and wash exposed skin thoroughly with warm water and soap. If irritation is present after washing, get medical attention.

INHALATION: Remove exposed person to fresh air. If breathing has stopped perform artificial respiration. Keep the affected person warm and at rest. Get medical attention immediately.

INGESTION: DO NOT induce vomiting. Obtain medical attention immediately, if unavailable contact nearest Poison Control Center. Keep affected person warm and at rest.

NOTE TO PHYSICIAN: Supportive therapy is recommended. No known antidote. Careful lavage may be indicated after ingestion.

SECTION 7: REACTIVITY DATA

STABLE OR UNSTABLE:

Stable under normal conditions of usage.

CONDITIONS TO AVOID:

Storage at temperatures above 110 F and moisture contact.

INCOMPATIBLE SUBSTANCES:

Oxidizing substances.

CAN HAZARDOUS POLYMERIZATION OCCUR:

Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS AND CONDITIONS:

Carbon monoxide, carbon dioxide, oxides of nitrogen, possibly aromatic amines, aldehydes, ammonia, and small amounts of hydrogen cyanide under burning conditions.

SECTION 8: SPILL AND LEAK PROCEDURES

RESPONSE TO SPILLS:

Stop discharge and contain spill or contaminated material using dike, barrier, or other means. Recover with pumping equipment, vacuum truck, sorbents or by other means. Neutralize by soaking with 5% ammonia solution or water with 10% isopropanol. Open containers should not be closed for disposal until all foaming or bubbling has stopped. Place material in suitable containers for further handling.

HAZARDS TO BE AVOIDED:

Do not flush to stream, other bodies of water or sewer unless authorized. Avoid contact with skin or clothing. Other hazards see Section Nos. IV (Fire and Explosion Data), V (Health Hazard Data), and IX (Control Measures).

SPILL NOTIFICATION:

This product contains one or more hazardous substances as listed in 40 CFR 302.4, which, if released into the environment in a quantity equal to or greater than the reportable quantity, must immediately be reported to the National Response Center (NRC), Telephone No. 1-800-424-8802. Check Federal, State and local reporting regulations.

DISPOSAL METHODS:

- (a) Recycle, if feasible.
- (b) Incinerate in authorized facility.
- (c) Treatment at Industrial or Liquid Waste treatment facility.
- (d) Landfill in authorized facility. (Solidification or fixation may be required prior to landfill disposal.)

NOTES:

THIS MATERIAL IF BEING DISCARDED DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION 9: CONTROL MEASURES

RESPIRATORY PROTECTION:

Use NIOSH/MSHA approved respiratory protection within equipment limitations. Consult OSHA 29 CFR, 1910.134, Respiratory Protection. S.C.B.A. or air line respirators may be required for protection against the isocyanate. An Industrial Hygienist should be consulted to aid in this determination and for consultation regarding respirator selection, use and training.

OTHER PROTECTIVE EQUIPMENT:

FOR HANDS AND BODY:

Chemical resistant gloves are recommended for hand protection. Work clothing for general body protection and other protective clothing as necessary to prevent repeated or prolonged skin contact.

FOR EYES:

Safety glasses, face shields (eight-inch minimum) or splash-proof chemical goggles in addition to safety glasses during pouring and dispensing or where other eye hazards exist.

OTHER:

- Use under well-ventilated conditions.
- For personal hygiene protection we recommend that employees wash thoroughly after handling product. Always wash-up before eating, drinking, smoking or using restroom facilities.
- Properly bond and ground all containers during pouring, dispensing and mixing operations to minimize the static charge buildup.

VENTILATION:

Exhaust ventilation at all vapor release points is recommended to maintain vapors below lowest TLV of substance in mixture.

SECTION 10: SPECIAL PRECAUTIONS

RECOMMENDED STORAGE PRACTICE AND CONDITIONS:

Store between 50 and 100 F in dry area. Storage at higher temperatures causes polymerization.

SECTION 10: SPECIAL PRECAUTIONS, continued

OTHER PRECAUTIONS:

For industrial use-only. Use with adequate ventilation. Avoid skin contact. Eyewash and shower should be available. Always wash-up after handling and before eating, drinking, smoking or using restroom facilities.

SECTION 11: LABELING INFORMATION

DOT SHIPPING NAME: Non-Regulated

DOT LABEL: Not Applicable

DOT IDENTIFICATION NO.: Not Applicable

MORTON PRECAUTIONARY LABEL NO.: L177

SECTION 12: REGULATORY INFORMATION

SARA TITLE III, SECTION 313 REQUIREMENTS:

Substances identified with an asterisk in SECTION 2 - HAZARDOUS INGREDIENTS, are toxic chemicals under Section 313. If no material is identified with an asterisk, then this product contains no substance reportable under this notification requirement.

SECTION 13: USERS RESPONSIBILITY

A BULLETIN SUCH AS THIS CANNOT BE EXPECTED TO COVER ALL POSSIBLE INDIVIDUAL SITUATIONS. AS THE USER HAS THE RESPONSIBILITY TO PROVIDE A SAFE WORKPLACE, ALL ASPECTS OF AN INDIVIDUAL OPERATION SHOULD BE EXAMINED TO DETERMINE IF, OR WHERE, PRECAUTIONS - IN ADDITION TO THOSE DESCRIBED HEREIN - ARE REQUIRED. ANY HEALTH HAZARD AND SAFETY INFORMATION CONTAINED HEREIN SHOULD BE PASSED ON TO YOUR CUSTOMERS OR EMPLOYEES, AS THE CASE MAY BE. MORTON THIOKOL, INC. MUST RELY ON THE USER TO UTILIZE THE INFORMATION WE HAVE SUPPLIED TO DEVELOP WORK PRACTICE GUIDELINES AND EMPLOYEE INSTRUCTIONAL PROGRAMS FOR THE INDIVIDUAL OPERATION.

DISCLAIMER OF LIABILITY

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. Users of any chemical should satisfy themselves that the conditions and methods of use assure that the chemical is used safely. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO THE INFORMATION CONTAINED HEREIN OR THE CHEMICAL TO WHICH THE INFORMATION REFERS. It is the responsibility of the user to comply with all applicable Federal, State and local laws and regulations.

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INITIALS: DBW:PSF - Chicago
SKF:mes - Woodstock

COMMONWEALTH OF PENNSYLVANIA ADDENDUM TO
MATERIAL SAFETY DATA SHEET

SOLITHANE 113

All of the materials in this product that are required by the Commonwealth of Pennsylvania to be identified are either listed below or in SECTION 2 of the Material Safety Data Sheet. In addition, some of the materials identified may have been placed by the Commonwealth of Pennsylvania on their Hazardous Substance List.

<u>INGREDIENTS</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Isocyanate Terminated Polyol	Proprietary	93-94

The specific chemical identity of any substance not identified with a Chemical Abstracts Service Number is being withheld as a trade secret.

MSDS EFFECTIVE DATE: 02/24/89
ADDENDUM EFFECTIVE DATE: 02/24/89

SKF:mes

FN-238

GENERAL ELECTRIC

General Electric Company

P.O. Box 8555

Philadelphia PA 19101

SAFETY OFFICE Bldg #21



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FIRST CLASS MAIL

Document Processing Center

Office of Toxic Substance

TS-790

U.S. EPA

401 M Street, SW

Washington, DC 20460

Attention: CAIR Reporting Office